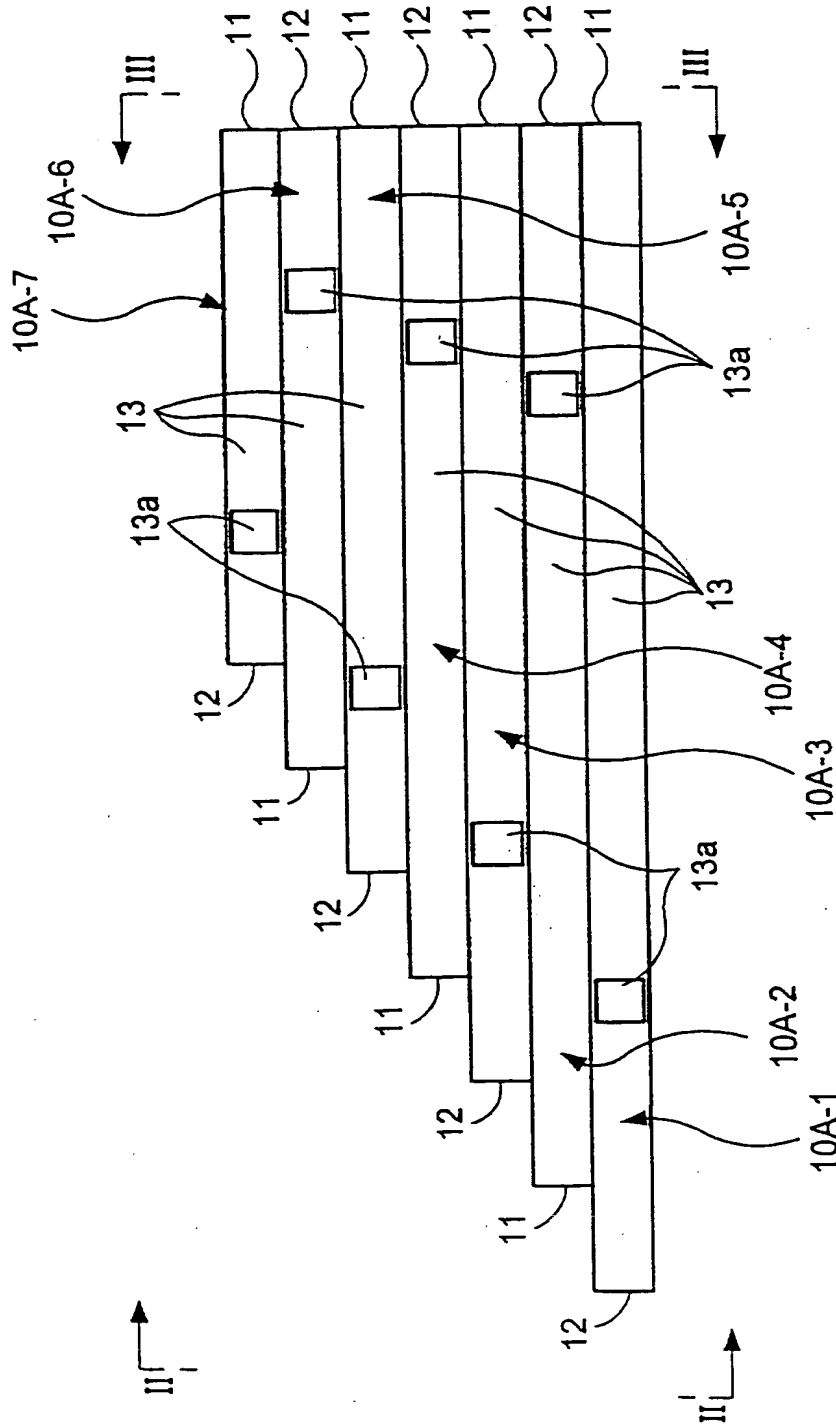
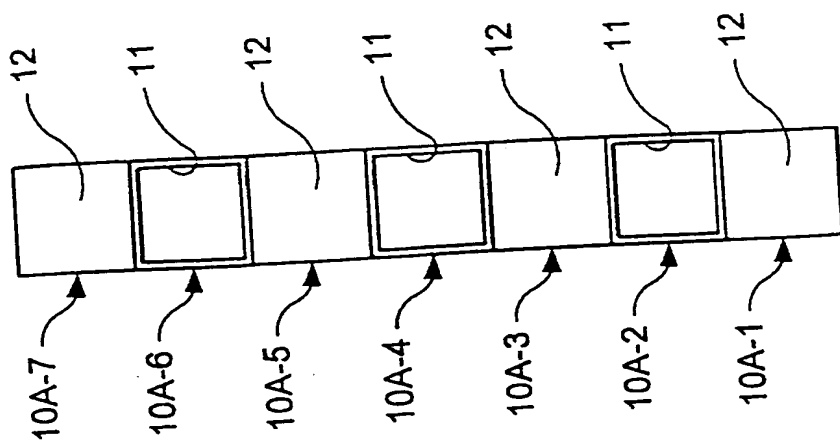


FIG. 1

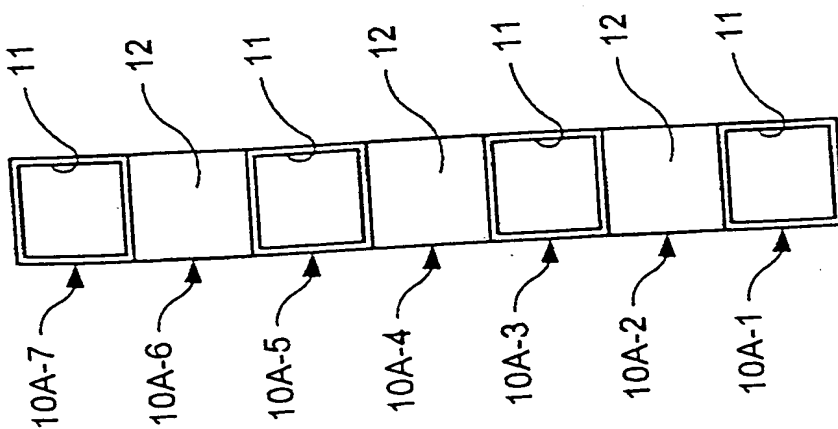


5: SOUND RADIATING STRUCTURE



5: SOUND RADIATING STRUCTURE

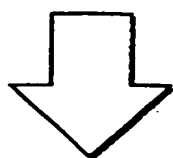
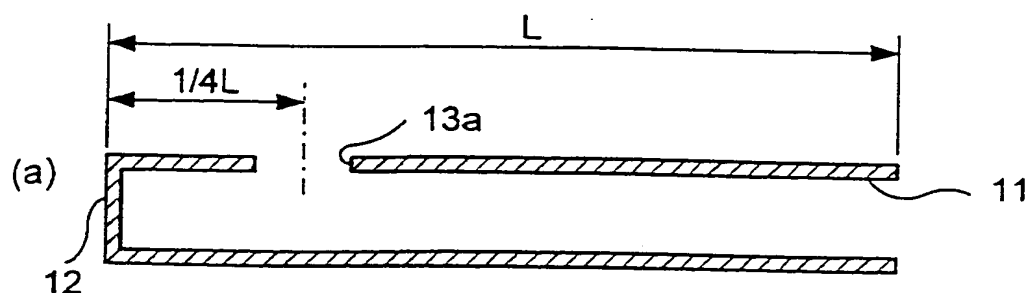
FIG. 2



5: SOUND RADIATING STRUCTURE

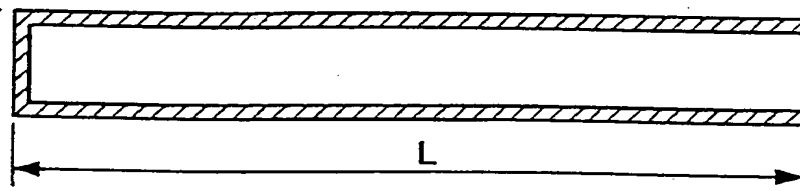
FIG. 3

FIG. 4



These drawings are not to scale and are intended to illustrate the principles of the invention.

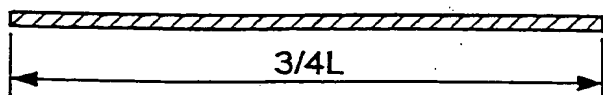
(b)



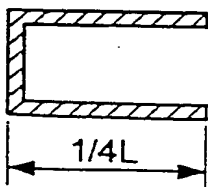
CLOSED PIPE
OF LENGTH L



OPEN PIPE OF
LENGTH $3/4L$



$3/4L$



OPEN PIPE OF
LENGTH $1/4L$

$1/4L$

100: SOUND RADIATING STRUCTURE

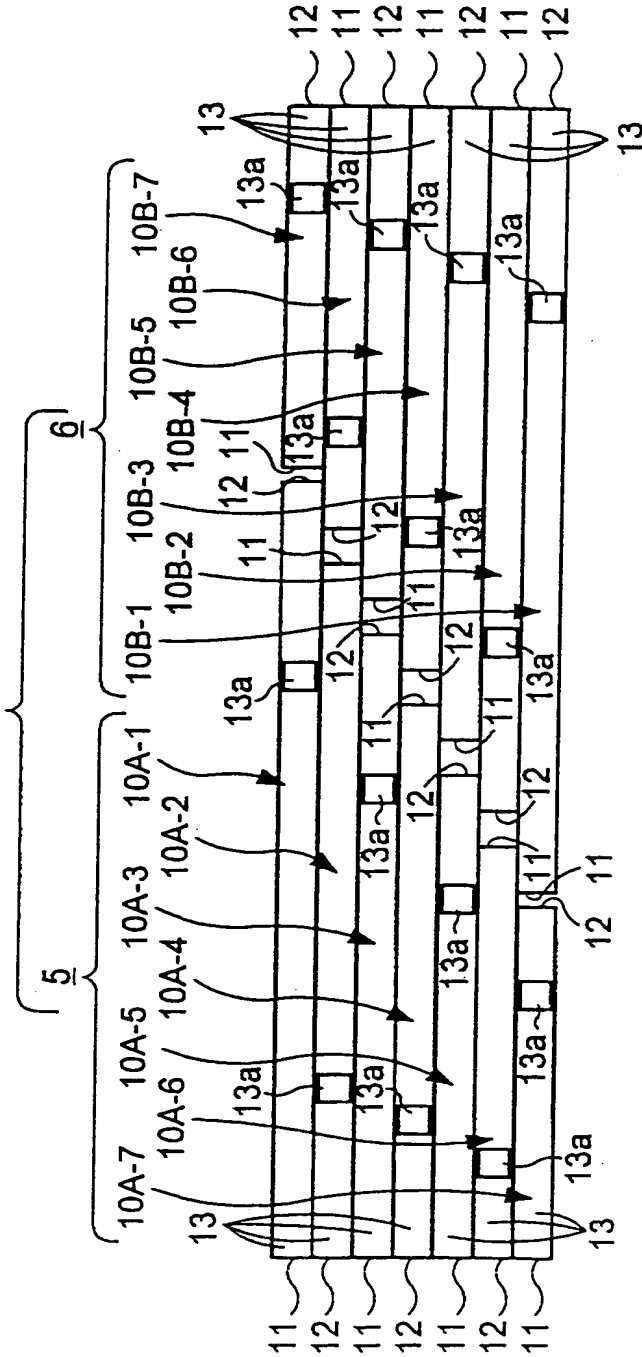


FIG. 5

FIG. 6

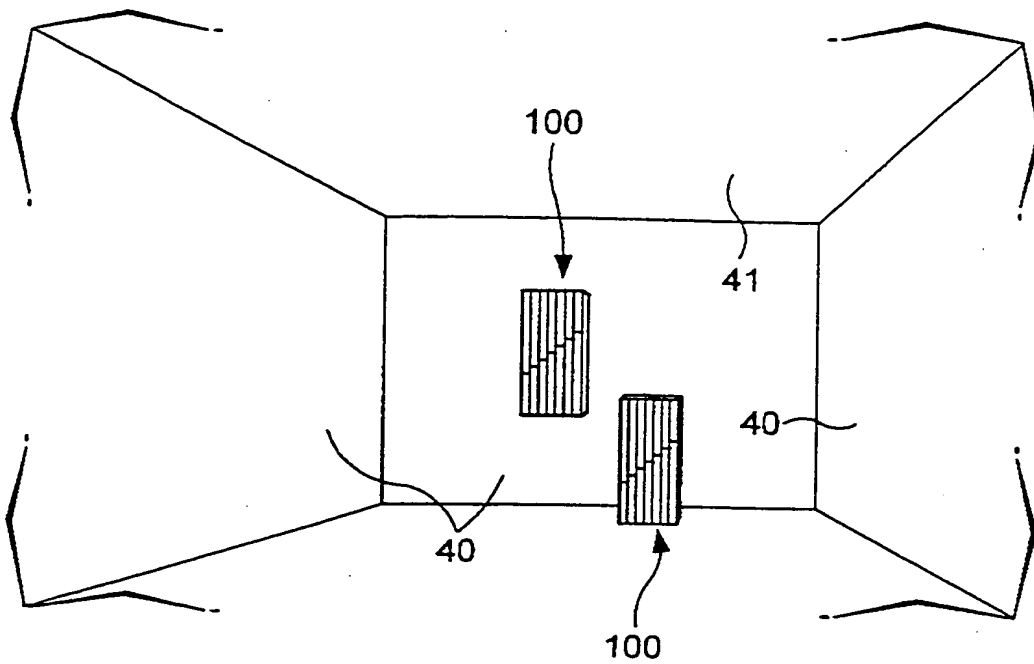


FIG. 7

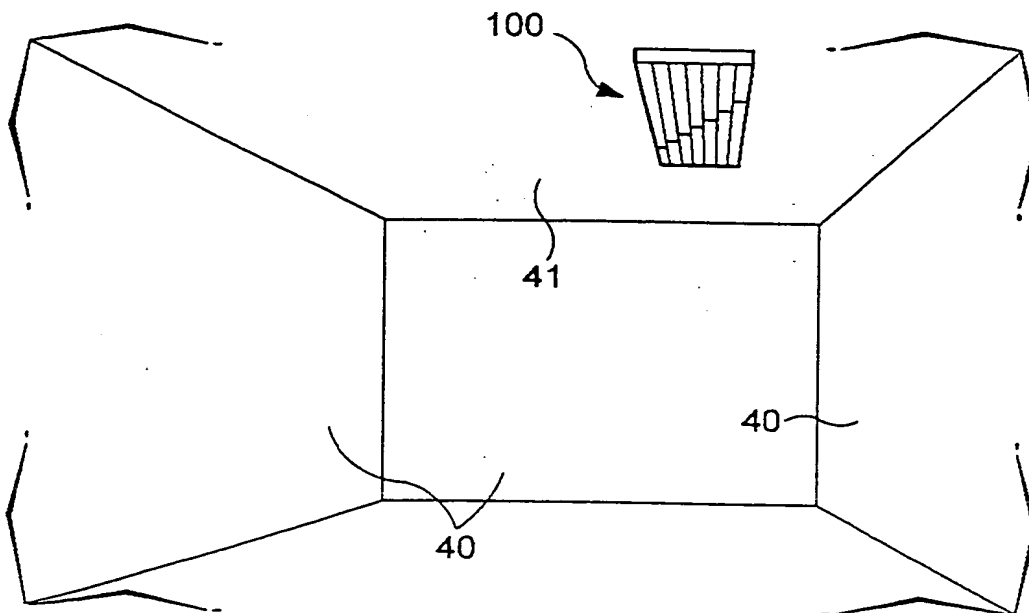
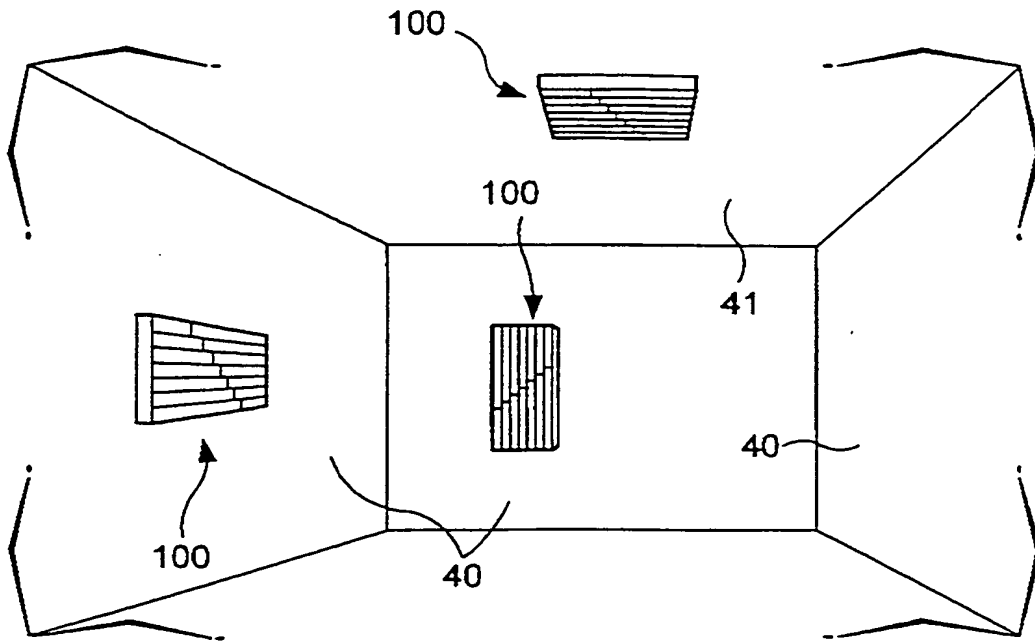


FIG. 8



PIPE NO.	A1	B1	A2	B2	A3	B3	A4	B4	A5	B5	A6	B6	A7	B7
LENGTH L(mm)	895	850	800	760	720	680	640	605	565	530	500	470	445	425
f(Hz)	95	100	106	112	118	125	133	140	150	160	170	181	191	200
f-S(Hz)	380	400	425	447	472	500	531	562	602	642	680	723	764	800
f-L(Hz)	253	267	283	298	315	333	354	375	401	428	453	482	509	533

FIG. 9

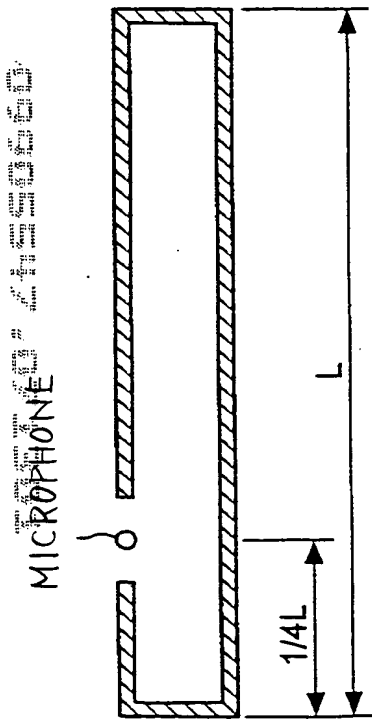


FIG. 10 A

PIPE NO.	A1	B1	A2	B2	A3	B3	A4	B4	A5	B5	A6	B6	A7	B7
$f \cdot L'(\text{Hz})$	127	133	142	149	157	167	177	187	201	214	227	241	255	267
MEASURED VALUE $f_1(\text{Hz})$	120	135	140	145	150	180	190	180	185	210	225	225	230	235
MEASURED VALUE $f_2(\text{Hz})$	350	350	360	395	390	410	445	490	515	500	510	570	550	610
MEASURED VALUE $f_3(\text{Hz})$	850	1000	1100	1200	1000	1100	1350	1250	1600	1000	1400	1500	1200	1800

FIG. 10 B

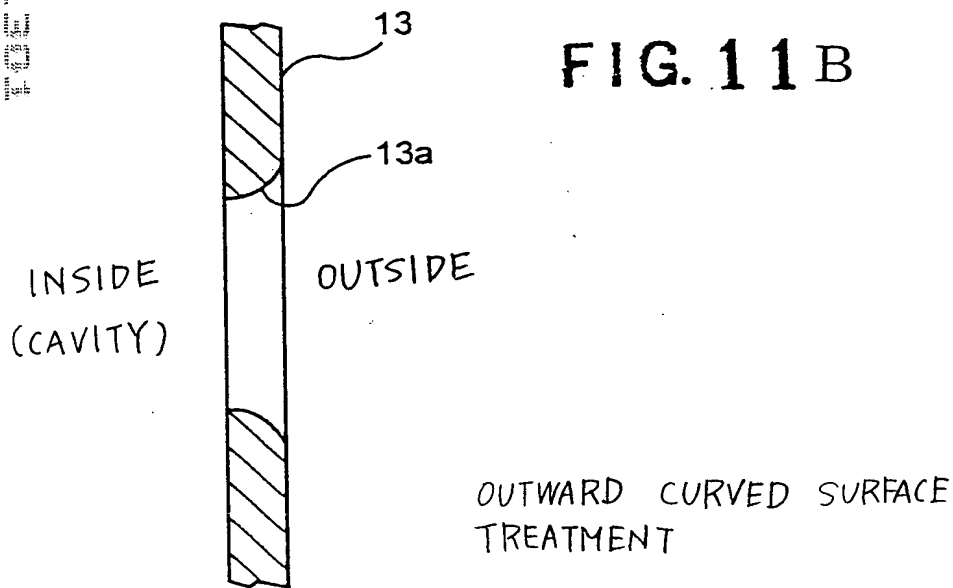
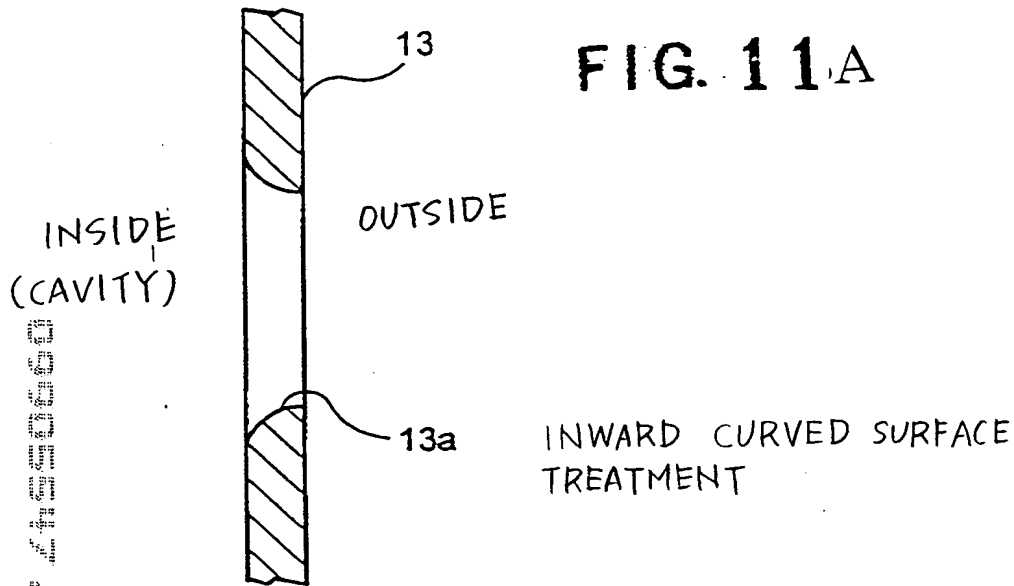


FIG. 12

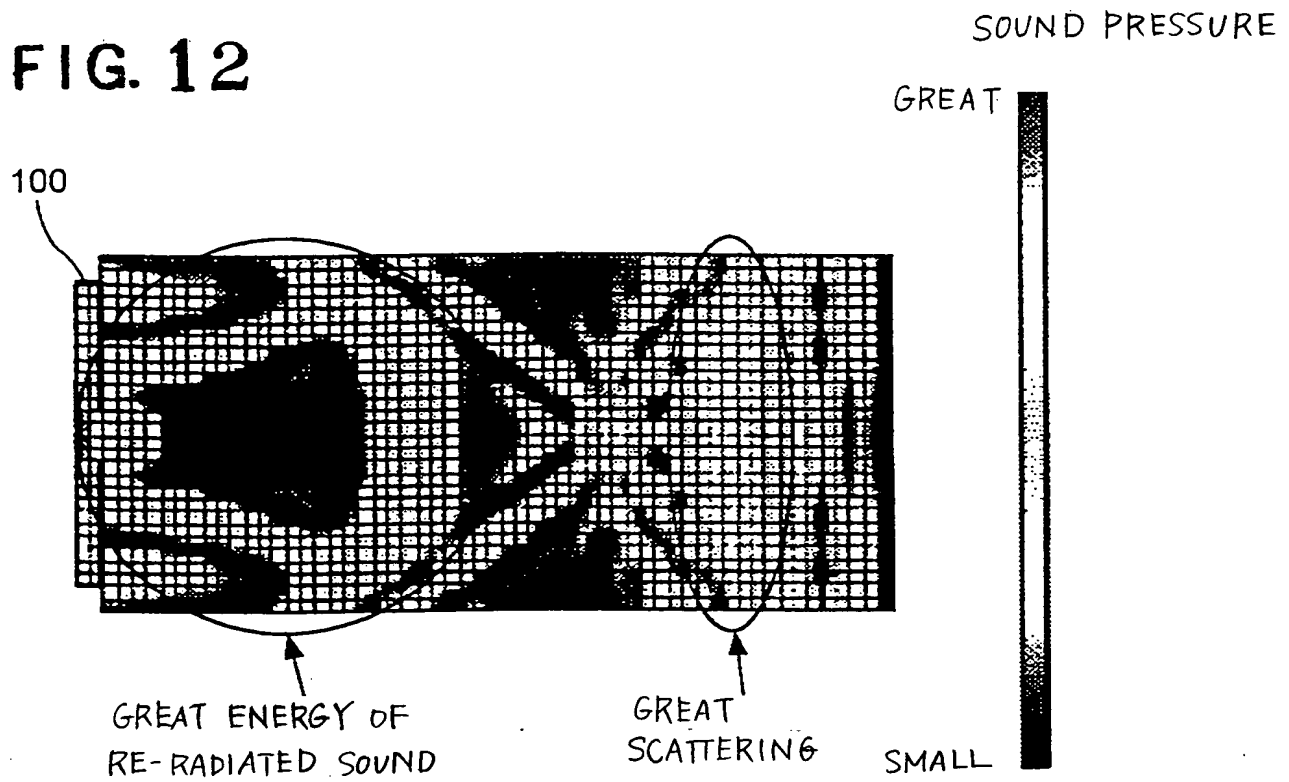


FIG. 13

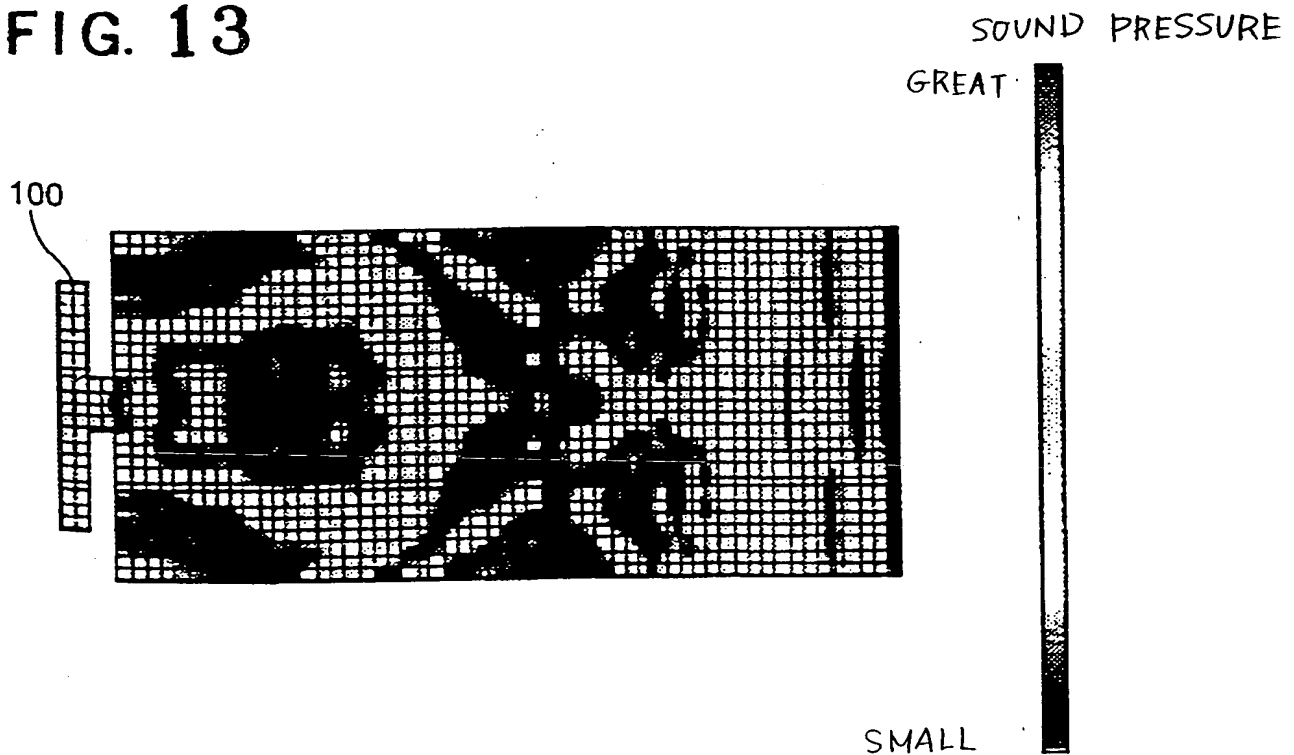


FIG. 14

SOUND PRESSURE

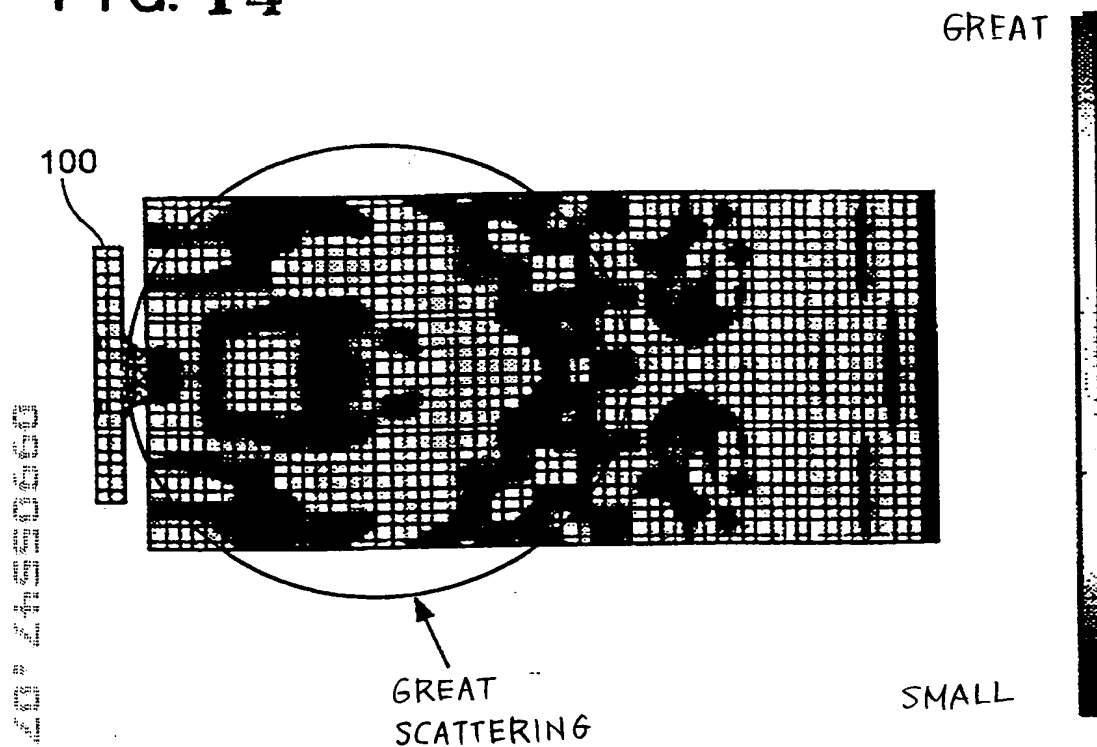


FIG. 15

SOUND PRESSURE

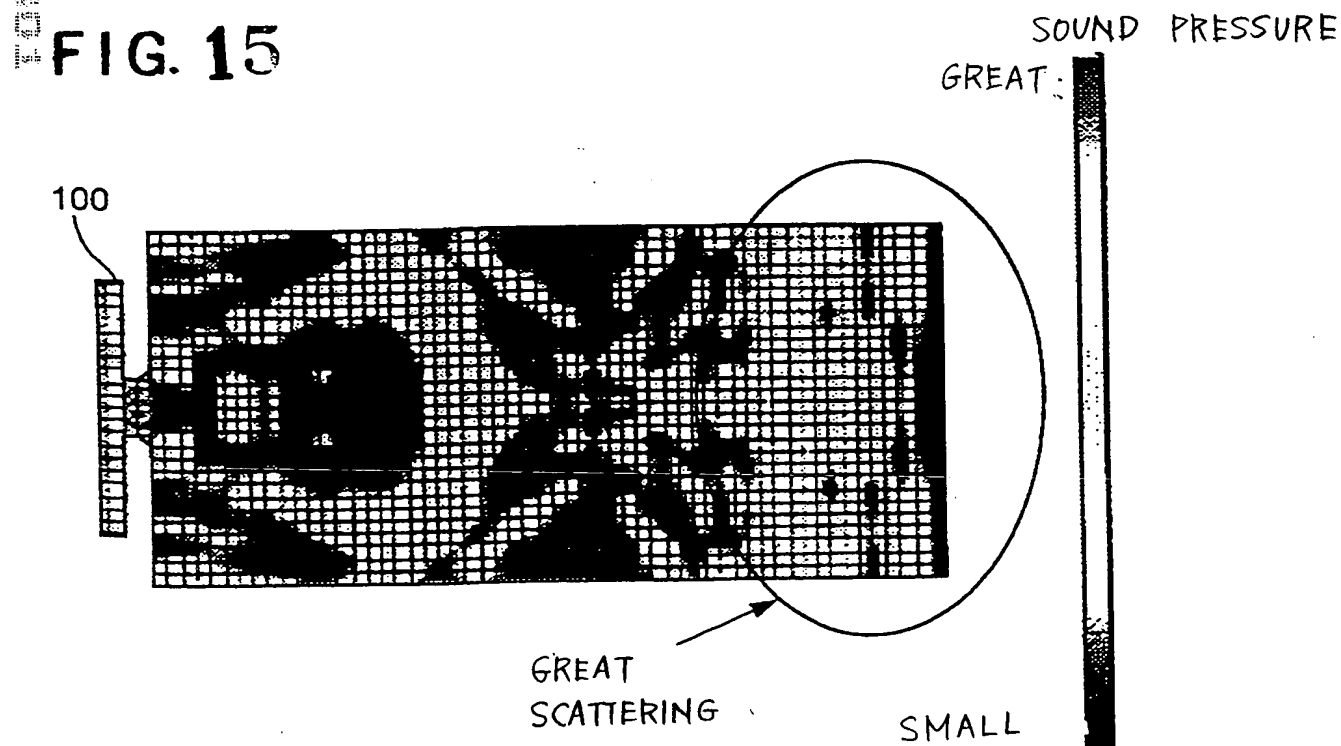
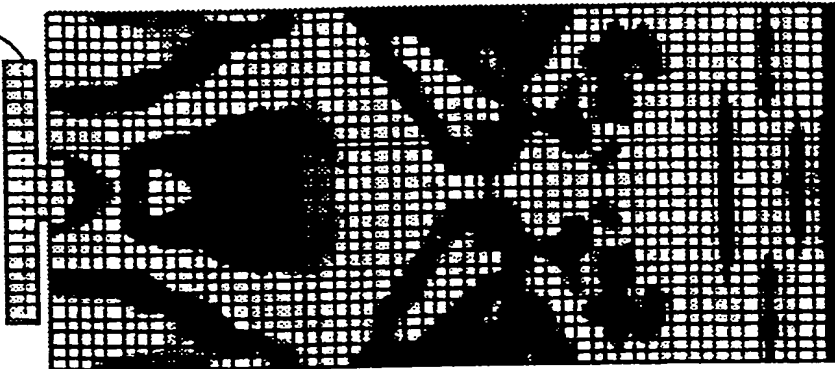


FIG. 16

SOUND PRESSURE

GREAT

100



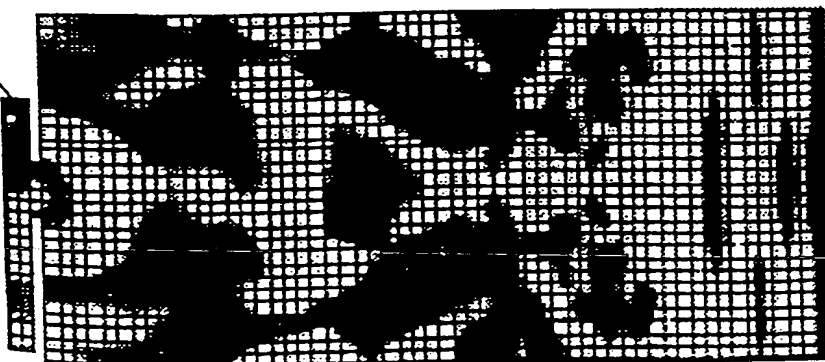
SMALL

FIG. 17

SOUND PRESSURE

GREAT

100



SMALL

FIG. 18

SOUND PRESSURE

GREAT.

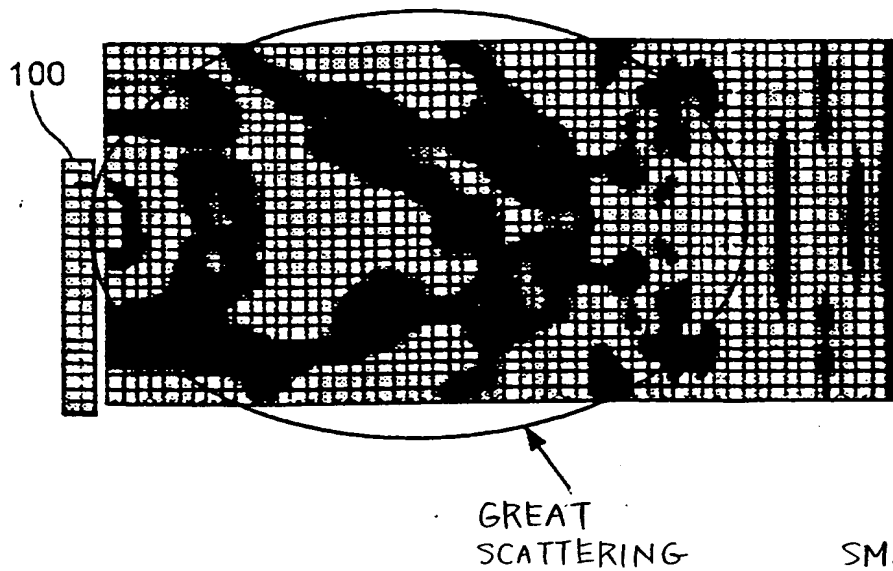


FIG. 19

SOUND PRESSURE

GREAT.



FIG. 20

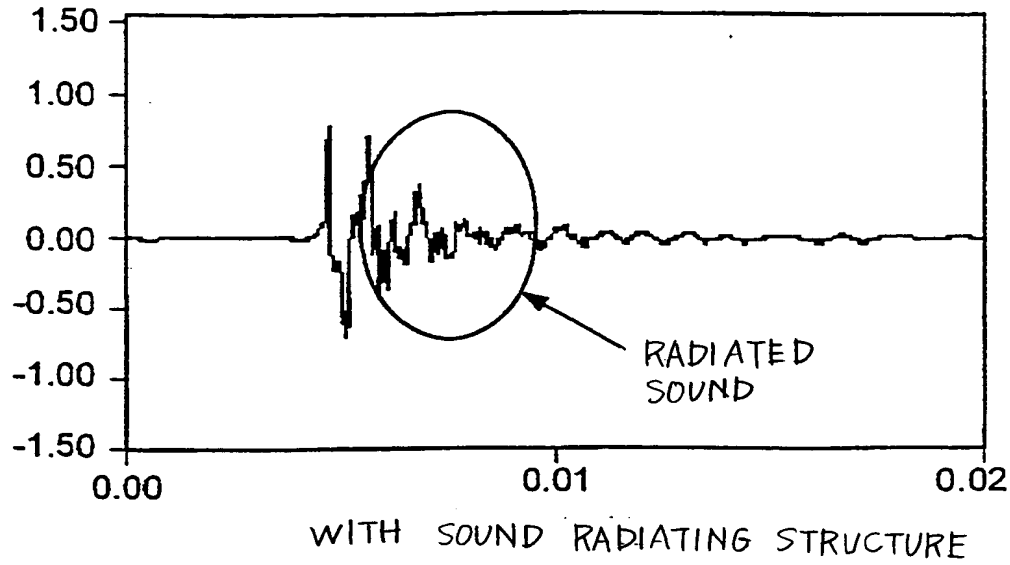


FIG. 21

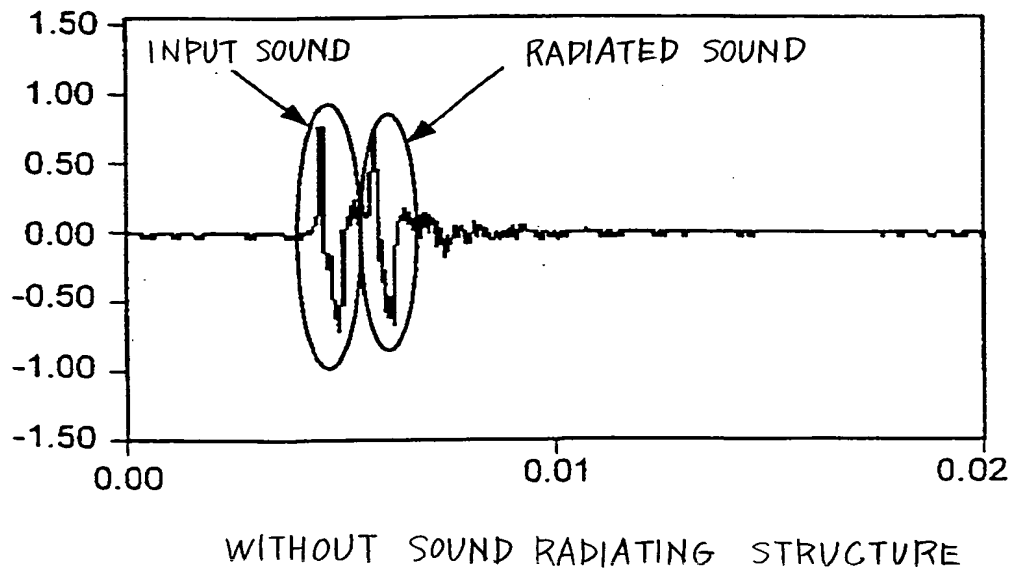


FIG. 22

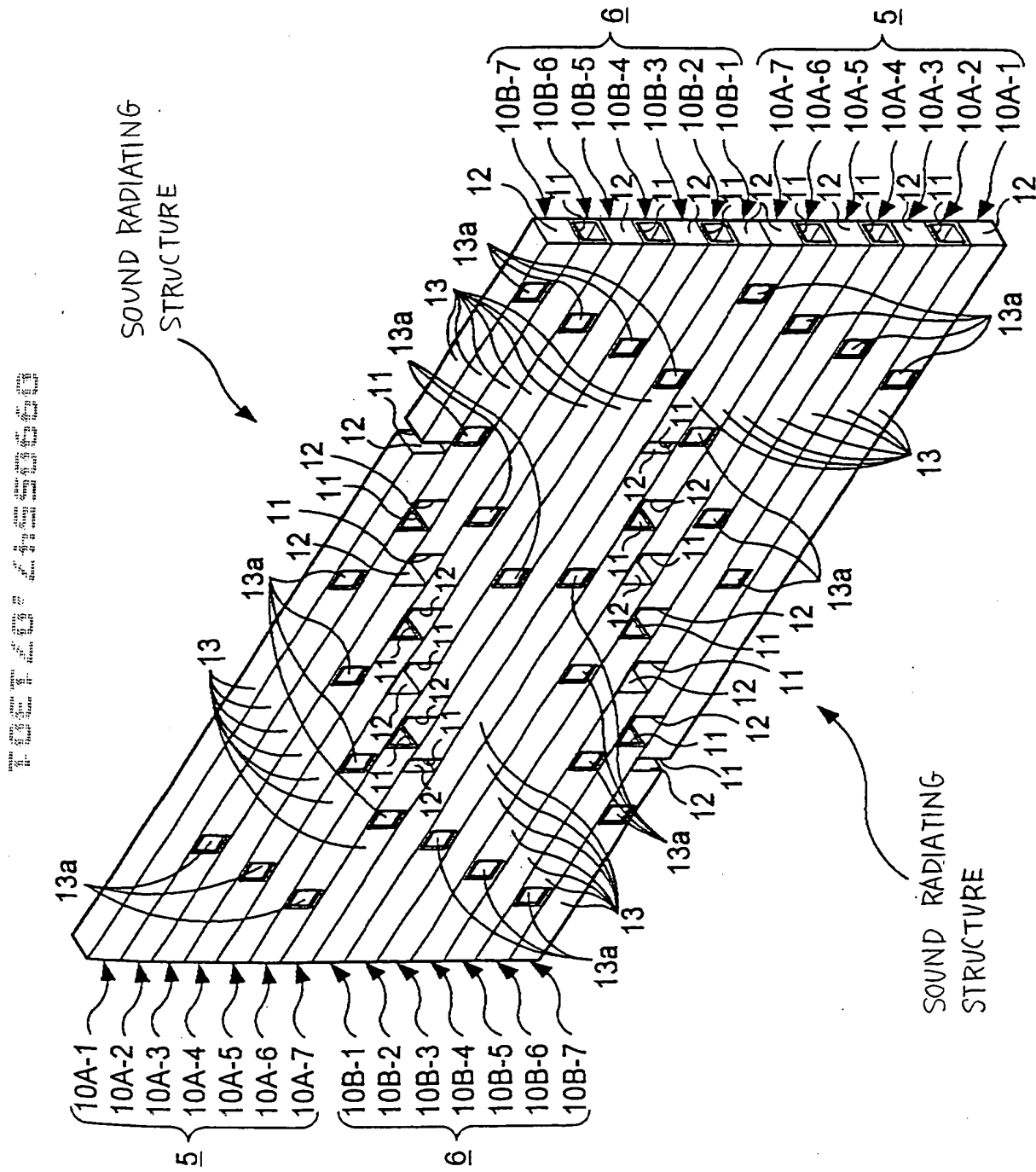


FIG. 23

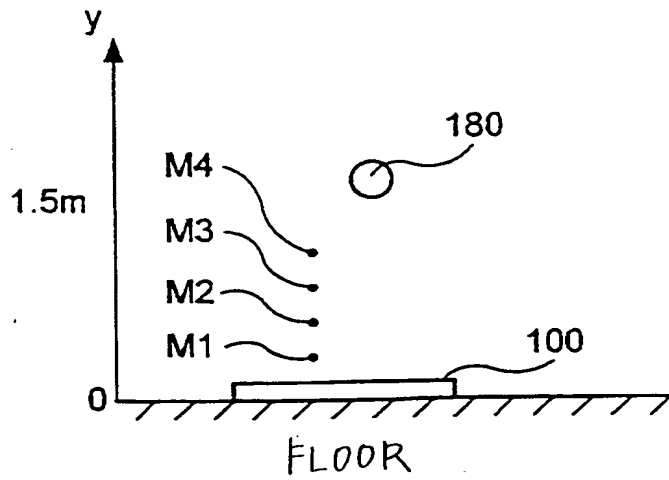


FIG. 24

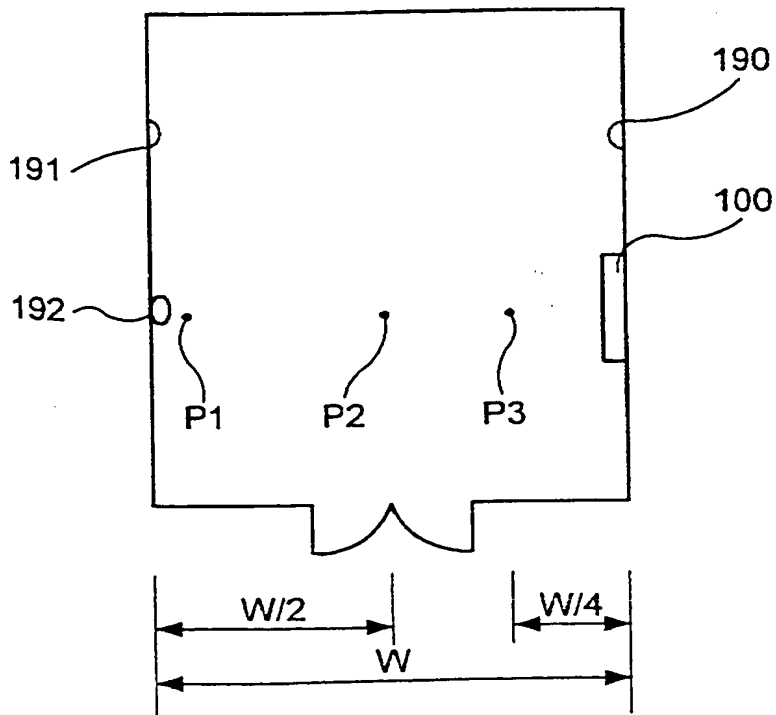
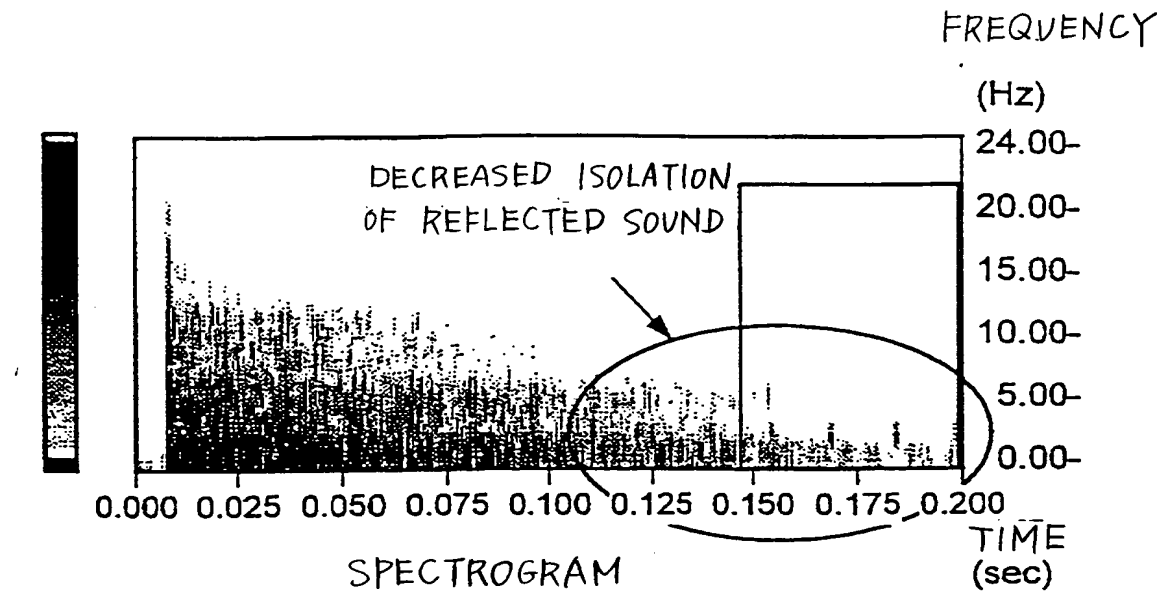


FIG. 25



IMPULSE RESPONSE

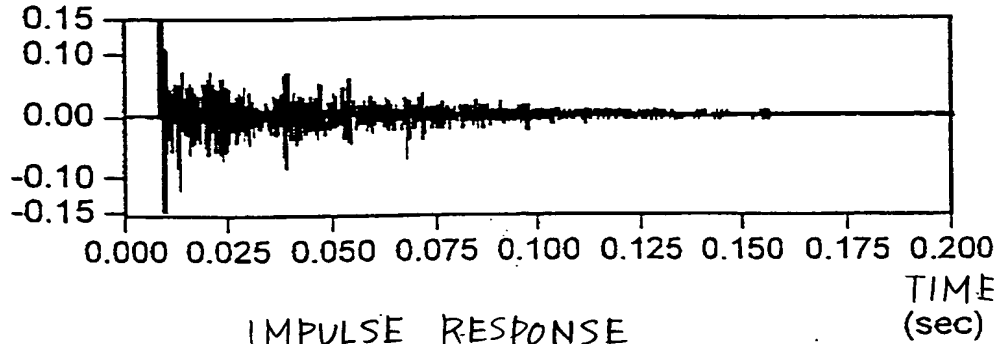


FIG. 26

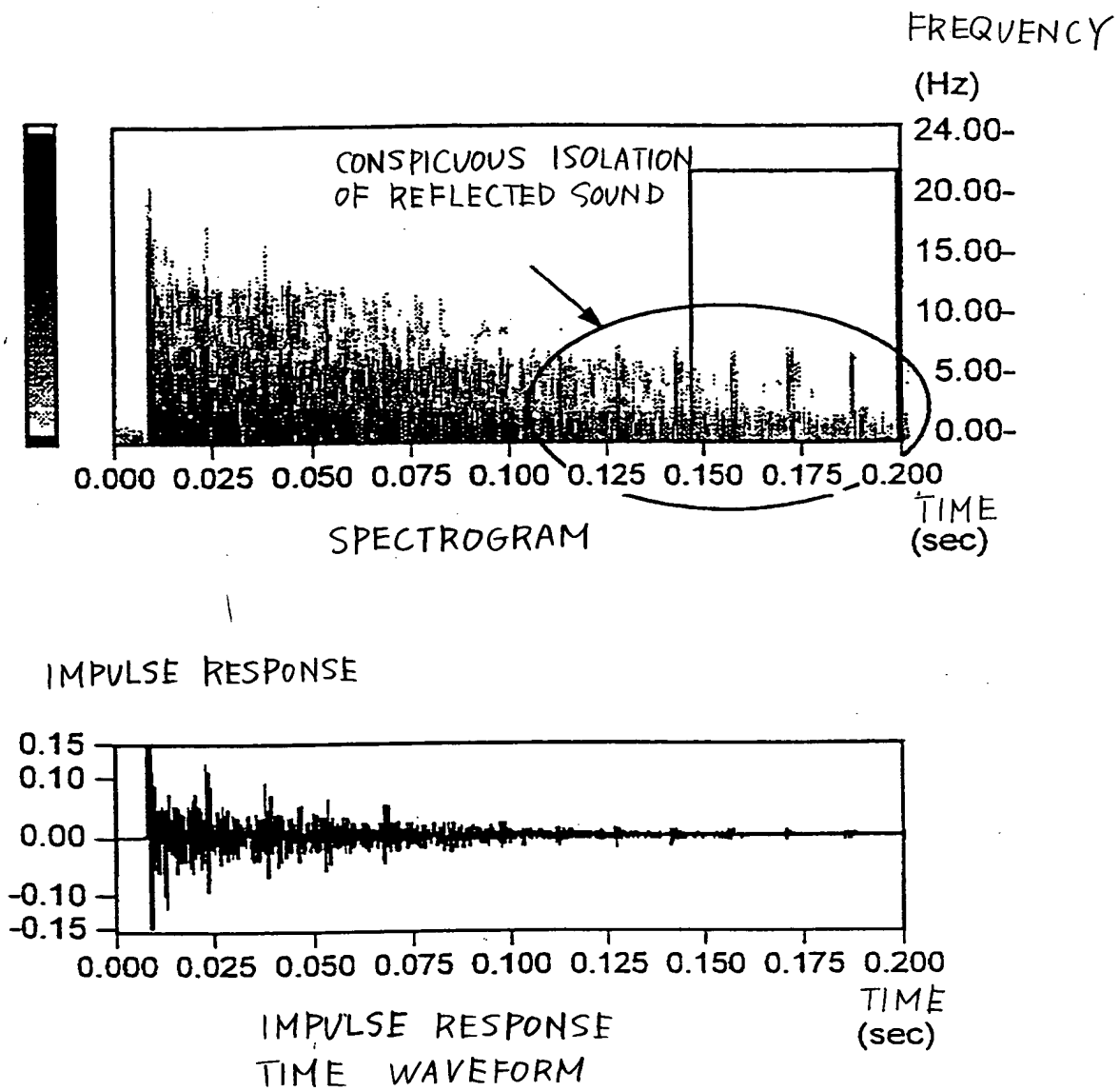


FIG. 27

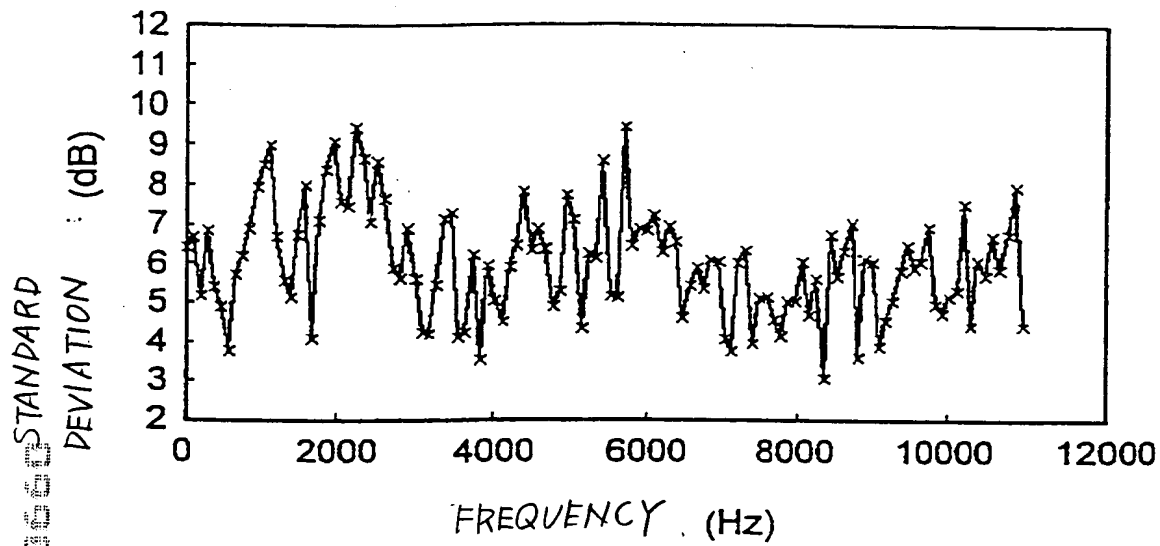


FIG. 28

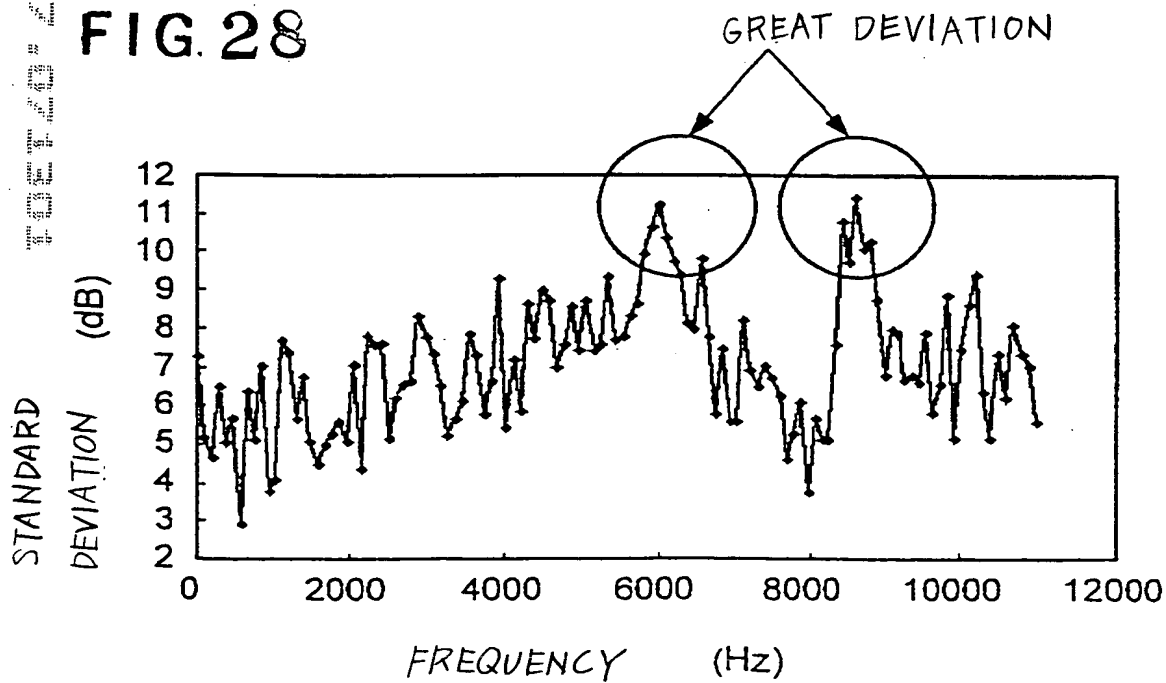


FIG. 29

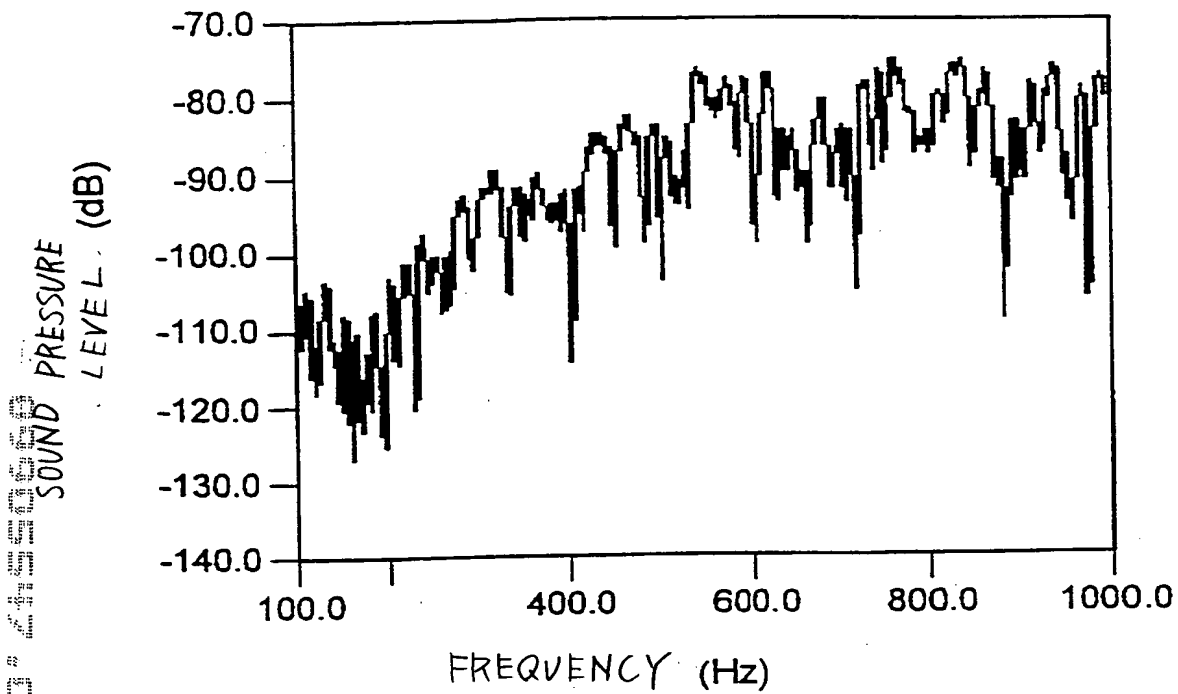


FIG. 30

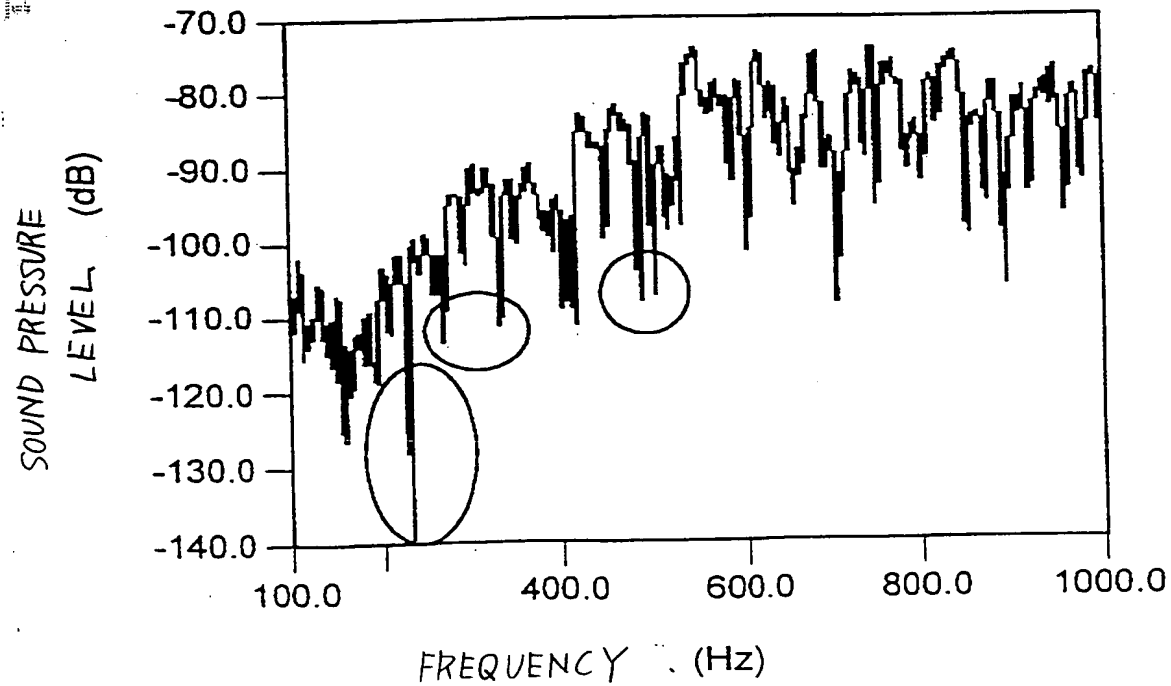


FIG. 31

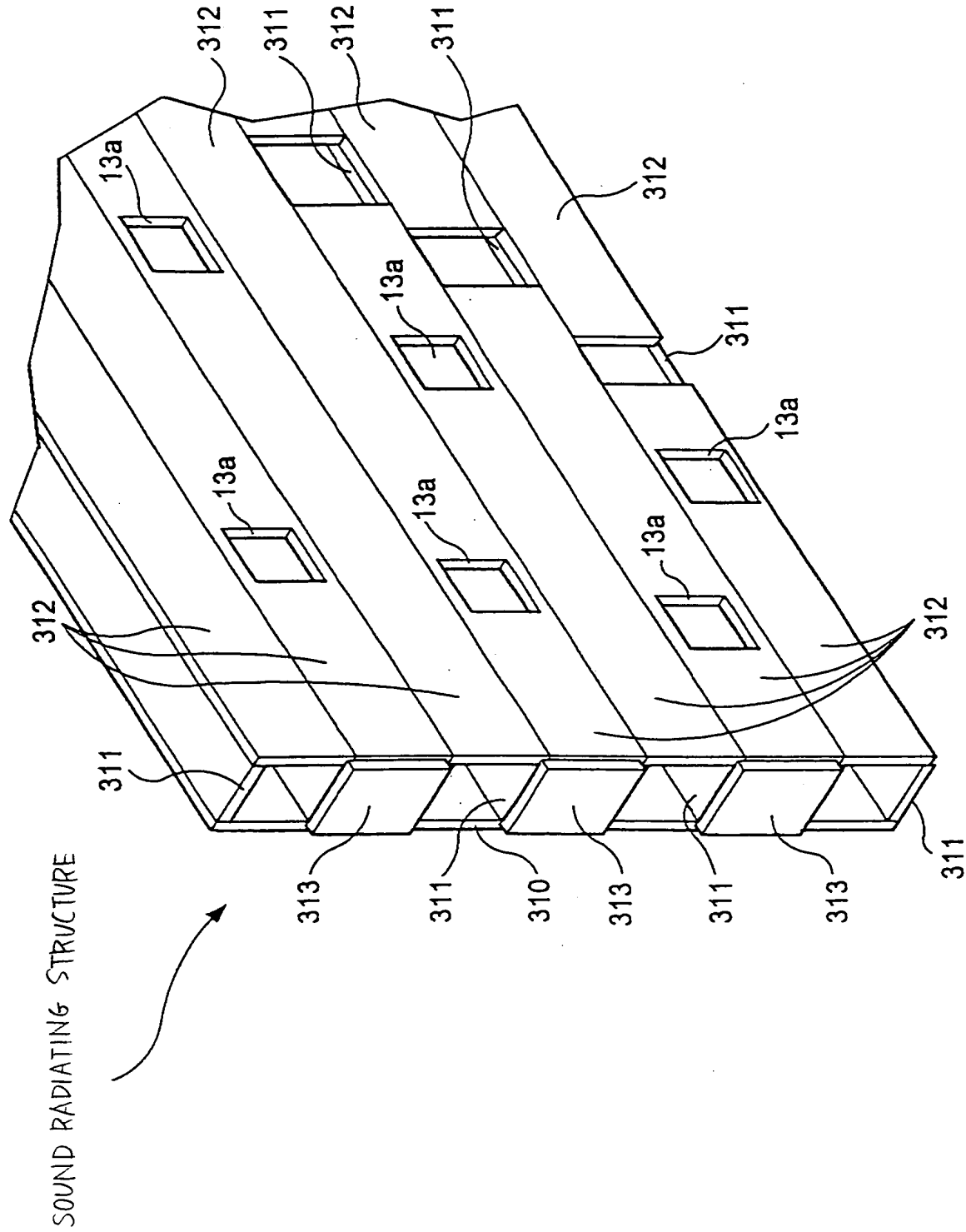


FIG. 32

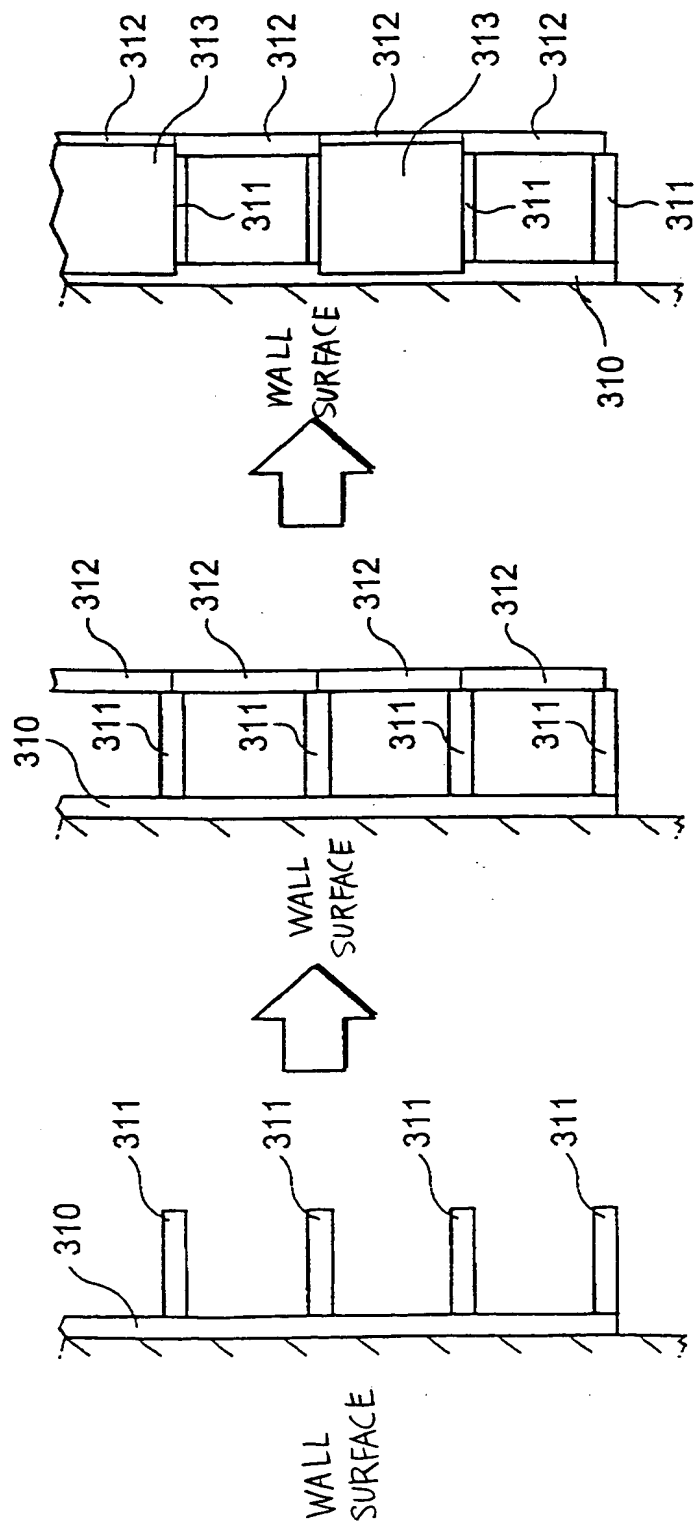


FIG. 33

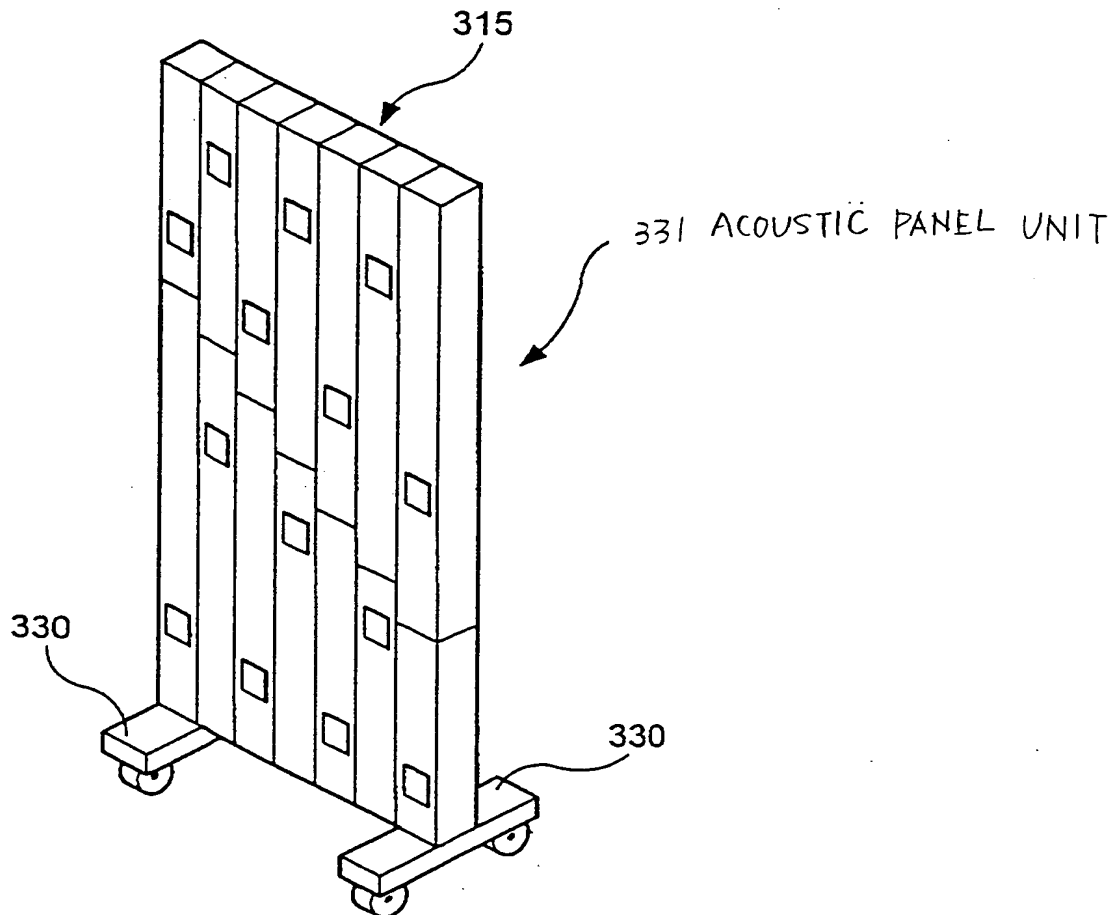




FIG. 34

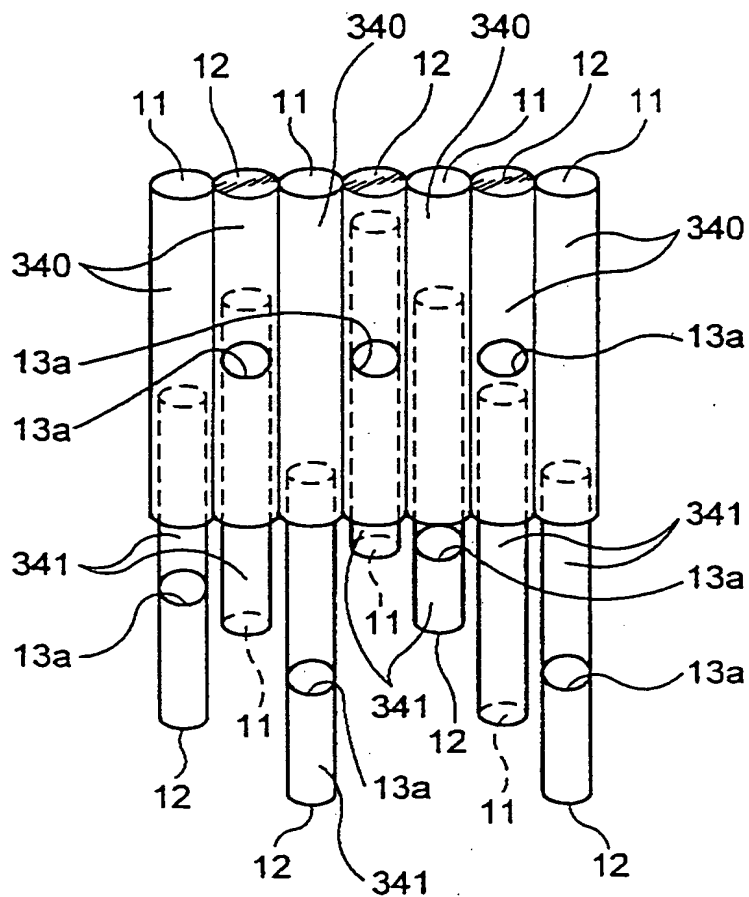
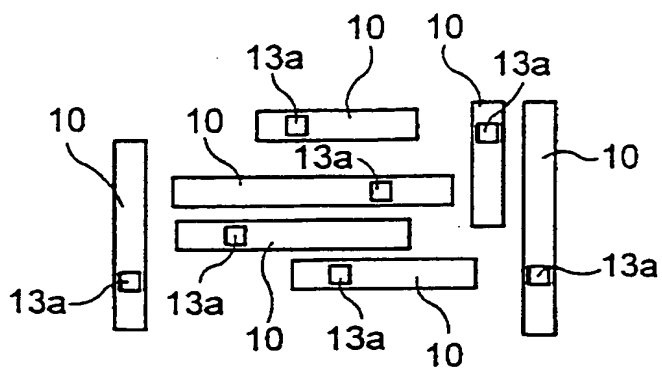
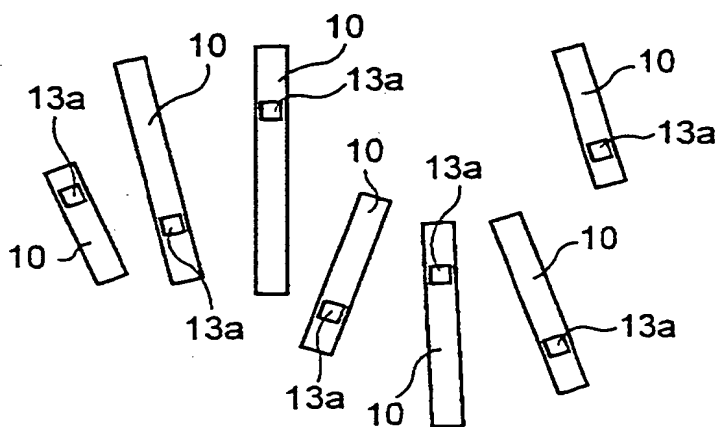


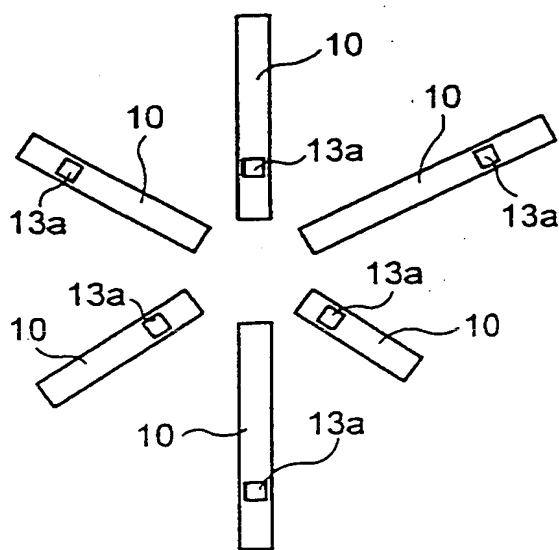
FIG. 35



(a)



(b)



(c)

FIG. 36

